

What is claimed is:

1. A method for controlling consumable use in an image-rendering device, wherein images rendered are represented in the device by use of a consumable material having a consumable element specification, the consumable element having associated therewith a use factor for printing that is dependent on the particular associated consumable and amounts thereof, for which a threshold may be set, the method comprising:

determining the presence of an optional override mode;

in the presence of the override mode, rendering the image without implementation of at least one consumable reduction technique, and in the absence of the override mode, rendering the image with implementation at least one consumable reduction technique, so as to reduce use of the consumable material, according to the following steps:

(a) providing an image having an associated consumable element specification;

(b) determining at least one consumable material amount of the image;

(c) determining the estimated consumable material use for the image based on the consumable material amount and its associated use factor;

(d) determining whether the estimated material use exceeds the threshold;

(e) if the estimated material consumption exceeds the threshold, reducing the consumable material amount to be used in rendering the image according to the consumable amount reduction technique, so as to provide a modified image; and

(f) rendering the modified image.

2. The method as set forth in claim 1 wherein the determination of consumable use is performed on a page-by-page basis.
3. The method as set forth in claim 1 wherein the determination of consumable use is performed on a document-by-document basis.
4. The method as set forth in claim 1 wherein the technique for reducing the consumable amount is selectably configured according to input data.
5. The method as set forth in claim 1 wherein the presence of the override mode is controlled in conjunction with use of a permission device.

6. A method for controlling page cost in an image rendering device, wherein images rendered are represented in the device by color elements having color element specifications, the color elements each having associated therewith cost factors for printing that are dependent on particular associated colorants and amounts thereof, for which a threshold printing cost may be set, the method comprising:

determining the presence of an optional override mode, and in the presence of the override mode, rendering the color image without implementation of page cost reduction, and in the absence of the override mode, rendering the color image with implementation page cost reduction, according to the following steps:

- (a) providing a color image having color element specifications;
- (b) determining at least one colorant amount of the color image;
- (c) calculating a printing cost for the image based on the colorant amount and a respective colorant dependant cost factor;
- (d) determining whether the printing cost exceeds the threshold printing cost;
- (e) if the printing cost exceeds the threshold printing cost, reducing the colorant amount to be used in rendering the color image according to a colorant reduction technique so as to provide a modified color image; and,
- (f) rendering the modified color image.

7. The method as set forth in claim 6 wherein the presence of the override mode is determined according to a password.

8. The method as set forth in claim 6 wherein the color element specifications are pixel colors.

9. The method as set forth in claim 6 wherein the step for providing a color image comprises scanning the color image.
10. The method as set forth in claim 6 wherein the step for calculating comprises multiplying a plurality of colorant amounts by the respective colorant-dependent cost factors and achieving a sum total according to a plurality of the color element specifications.
11. The method as set forth in claim 6 wherein the technique for reducing the colorant amount comprises selecting an alternative color table.
12. The method as set forth in claim 6 wherein the technique for reducing the colorant amount comprises applying a coverage reduction technique.
13. The method as set forth in claim 6 wherein the technique for reducing the colorant amount comprises redefining a color operator.
14. The method as set forth in claim 6 wherein the technique for reducing the colorant amount comprises reducing the size of an image element in the color image.
15. The method as set forth in claim 6 wherein the technique for reducing the colorant amount is selectably configured according to input data.
16. The method as set forth in claim 6 wherein the presence of the override mode is controlled in conjunction with use of a permission device.
17. The method as set forth in claim 6 wherein the method is implemented in a xerographic printing environment.

18. An image rendering device wherein images rendered are represented in the device by color element specifications, the color element specifications each having associated therewith colorant-dependent cost factors for printing, and wherein a threshold printing cost may be set, the system comprising:

an input operative to receive a color image having color element specifications;

a counting module operative to determine at least one colorant amount of the color image;

a cost determination module operative to calculate an actual printing cost for the image based on the colorant amount and the respective colorant-dependent cost factor;

a threshold switch operative to determine whether and to what extent the actual printing cost exceeds the threshold printing cost;

an image processing unit operative, upon a determination that the actual printing cost exceeds the threshold printing cost, to reduce the colorant amount to be used in rendering the color image according to a colorant amount reduction technique so as to provide a modified color image;

a print engine operative to print the modified color image when present, and if not, the color image;

wherein at least one of the cost determination module and the image processing unit is responsive to the presence of an optional override mode, and in the presence of the override mode causes the color image to be rendered without implementation of page cost reduction, and in the absence of the override mode causes the modified color image to be rendered thereby affording a reduction in page cost.

19. The system as set forth in claim 18 further comprising a scanner.

20. The system as set forth in claim 18 wherein the threshold switch, an ideal color table, and an at least one alternative color table are included in the image processing unit; wherein the ideal color table contains ideal color information accessed through the threshold switch when the actual printing cost does not exceed the threshold, and the alternative color table contains modified color information accessed through the threshold switch when the actual printing cost exceeds the threshold printing cost.

21. The system as set forth in claim 20 wherein the modified color information of the alternative color table includes ideal colors having hues shifted from secondary to primary colors.

22. The system as set forth in claim 20 wherein the modified color information of the alternative color table includes ideal colors having reduced saturation levels.

23. The system as set forth in claim 18 wherein the reduction of the colorant amount comprises a reduction in the size of an image element in the color image.

24. The method as set forth in claim 18 wherein the colorant amount reduction technique is selectably configured according to input data.

25. The method as set forth in claim 18 wherein the presence of the override mode is controlled in conjunction with use of a permission device.

26. The system as set forth in claim 18 wherein the print engine comprises a xerographic print engine.

27. An image rendering system wherein images rendered are represented by pixels, the pixels each have associated therewith a pixel cost for printing and wherein a threshold printing cost is set, the system comprising:

means for providing a color image having color pixels;

means for determining a number of the color pixels of the color image;

means for calculating a printing cost for the image based on the number of color pixels and the pixel cost;

means for determining whether the printing cost exceeds the threshold printing cost;

means for reducing a colorant amount to provide a modified color image to be used in printing if the printing cost exceeds the threshold printing cost;

means for printing the modified color image when present, and if not, the color image; and

means for determining the presence of an optional override mode, wherein the presence of the override mode causes the color image to be rendered without implementation of page cost reduction, and in the absence of the override mode causes the modified color image to be rendered thereby affording a reduction in page cost.

28. The system as set forth in claim 27 wherein the providing means comprises a scanner.

29. The system as set forth in claim 27 wherein the calculating means comprises a means for multiplying the number of color pixels by the pixel cost.

30. The system as set forth in claim 27 wherein the means for reducing the colorant amount comprises an alternative color table.

31. The system as set forth in claim 27 wherein the means for reducing the colorant amount comprises means for applying a coverage reduction technique.

32. The system as set forth in claim 27 wherein the means for reducing the colorant amount comprises means for redefining a color operator.

33. The system as set forth in claim 27 wherein the means for reducing the colorant amount comprises means for reducing the size of an image element in the color image.

34. The system as set forth in claim 27 wherein the means for reducing the colorant amount is configurable according to input data.

35. The method as set forth in claim 27 wherein the presence of the override mode is controlled in conjunction with use of a permission device.